Name:

at1118paper: Complete the Square (v418)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 60x = -644$$

Add $\left(\frac{-60}{2}\right)^2$, which equals 900, to both sides of the equation.

$$x^2 - 60x + 900 = 256$$

Factor the left side.

$$(x - 30)^2 = 256$$

Undo the squaring. We need to consider both $\pm\sqrt{256}$.

$$\begin{array}{rcl} x - 30 = -16 & \text{or} & x - 30 = 16 \\ x = -46 & \text{or} & x = -14 \end{array}$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 28x = -132$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 + 6x = 160$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 50x \;=\; -624$$

Question 4

By completing the square, find both solutions to the given equation:

$$x^2 - 36x \;=\; -260$$

Question 5

By completing the square, find both solutions to the given equation:

$$x^2 + 58x \;=\; -552$$

Question 6

By completing the square, find both solutions to the given equation:

$$x^2 - 48x \;=\; -567$$